Are private transfers altruistically motivated ? : the case of Nepal

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Are Private Transfers Altruistically Motivated? The Case of Korea before and during the Financial Crisis*

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Abstract

Using household panel data from Korea for 1995-1998, this paper shows that private transfers of Korean households are altruistically motivated. Moreover, although the altruistic motive of households seemed to be reinforced during the financial crisis, the amount of private transfers was still not sufficient to support households living in urban areas. Also, there had been a strong crowding-out relation between private and public transfers. This suggests that the Korean government could have designed its public transfer scheme in order to improve effectiveness and efficiency of its social safety net programs.

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1. Introduction

The Asian financial crisis was truly a watershed in Korea's economic history. With the onset of the crisis, the country's real GDP and real wage contracted by 5.8 and 10 percent, respectively, between 1997 and 1998. Unemployment rate jumped from 2.6 percent to 6.8 percent and inflation rose to 7.5 percent (Bank of Korea 2001; National Statistical Office 2001). As a result of the economic downturn, poverty increased substantially in the country—the 7.5 percent share of poor urban households in the first quarter of 1997 jumped to 23 percent by the third quarter of 1998. Also, the Gini coefficient in terms of per capita income of urban households increased from 0.27 in 1997 to 0.30 in 1998 (Kakwani 2000; World Bank 2000).

In the face of crisis-induced shocks, Korean households were forced to take drastic measures to protect their living standards. In fact, the World Bank (2000) reports that Korea was able to weather the crisis through effective coping policies. Furthermore, Goh, Kang and Sawada (2001) find that private transfers played a significant role in protecting households in the face of crisis. Private income transfers are important for reallocating resources. The importance of private transfers addresses the following issues: the motives of private income transfers and the crowding-out effect of public transfers on private transfers.

Using the Korean Household Panel Survey (KHPS) data, this paper tests for two competing hypotheses of transfer provision motives and crowding-out effects, i.e., the altruism and the self-interested exchange. These two motives imply different outcomes of public transfers, redistributing income (Cox 1987). Altruistically motivated private transfers could lead to ineffective public transfers (Becker 1974). On the other hand, for households that are motivated by exchange, these results do not hold (Cox 1987).

In contrast to the somewhat mixed existing empirical findings for other countries, the empirical results in this paper clearly show that Korean households are altruistically motivated. Accordingly, there had been a strong substitutability between private and public transfers. While Korea was able to weather the crisis through the

expansion of public transfers, these empirical results suggest that the government should have designed targeting schemes carefully in order to prevent such crowding-out effect of its social safety net programs.

The paper is organized as follows. Section 2 provides some theoretical background from existing work on public and private transfers. Section 3 gives descriptive evidences and Section 4 discusses the estimation model and results. The final section concludes.

2. Literature

Previous studies on private transfers identify two motives of private transfers (Cox 1987, 1990): altruism (Becker 1974) and self-interested exchange (Bernheim, Shleifer and Summers 1985). Households transfer resources out of feelings of altruism that implicitly determines the receiving household's consumption. Alternatively, donors give private transfers in order to receive something in exchange for their transfers in times of need.

The distinction between the altruistic and the exchange models has an important policy implication (Cox 1987; Cox and Jimenez 1990). Becker (1974), in his altruistic model, argues that public transfer programs will have little effect on the distribution of economic welfare. Under altruism, public transfers reduce the pre-transfer marginal utility of the recipient's consumption. Hence, if government were to tax the donor and give the proceeds to the recipient, the donor's intention to transfer will fade and she/he may decide to give less private transfers. This cutting back of private transfers in response to public redistribution is called the "crowding out" effect of public transfers. Thus, the Becker's altruism model predicts that public transfers tend to displace private transfers.

On the other hand, exchange-motivated transfers interact with public transfers in a different way. If transfers are motivated by exchange where the recipient compensates the donor by providing him some kind of services, public transfers will have little effect on private transfers (Cox 1987). In contrast to the assumption of the

Becker's (1974) altruism model, the exchange model argues that crowding out between private and public transfers does not necessarily occur. Moreover, under exchange motive, public transfers may even increase the probability of receipts by providing donors additional source of income. In this case, an expansion of social insurance by government will increase the size of the risk-sharing pool and may act as an effective social safety net device for households.

Existing evidences on the extent and magnitude of the crowding-out effect of public transfers are mixed. Some studies find that public transfers have little effect on private ones (e.g., Cox and Jakubson 1995; Cox and Rank 1992; Altonji, Hayashi and Kotlikoff 1992, 1997; Rosenzweig and Wolpin 1994) while others (e.g., Cox and Jimenez 1992, 1995; Cox, Eser and Jimenez 1998; Jensen 2002) have indicated that the possibility for crowding out to occur can be quite large. For example, Cox and Jimenez (1995) estimate that if unemployment insurance system were introduced in the Philippines, private transfers would fall so much that the intended beneficiaries of the program would scarcely be any better off. In contrast, they find that the degree of crowding out associated with pensions is much less significant.

However, in East Asia, many households are likely to be altruistically linked through a widespread and operative informal transfer network. From the assumption that as public transfers increase, altruistically-linked private transfer donors may cutback their private transfer provisions, a government subsidy intended only for those people in need may indirectly benefit donors who are often from the upper-income brackets and protected from exogenous shocks. Hence, a quantitative assessment of the altruistic model is very important. If the assumption of the altruism model is verified, that is crowding-out effect is proved to exist, government is then suggested to have careful targeting schemes to ensure the effectiveness of its social safety net programs.

3. Descriptive Evidence

3.1 Data

The main data source is the Korean Household Panel Survey (KHPS) that covers all prefectures except Jeju-do. Based on a stratified random sampling by street block, this data is collected through household- and individual-level multipurpose surveys.[1] This paper employs the survey data for 1995-1998. Each round covers from August to July next year. The 1998 round is considered to reflect the period of the crisis since it covers from August 1997 to July 1998. Income and expenditure variables are converted into real value by using provincial consumer price indices.

3.2 The impact of the crisis on household income and consumption

Table 1 shows that total income increased by 10 percent between 1995 and 1997. Labor income increased by 6.8 percent while asset income increased by 18 percent—constituting 71 and 19 percent of total income in 1997, respectively. Public and private transfers also increased but occupied only a small percentage of total income, i.e., 3.7 percent in 1997.

However, with the onset of the crisis, per capita total income fell by 24.1 percent between 1997 and 1998. The two major income categories—labor and asset income—dropped by 26.7 and 40.8 percent, respectively. Private transfers remained the same. Public transfers, on the other hand, rose by 38.7 percent. Although transfer income occupied only a small share of total income, its share increased from 3.7 percent to 5.3 percent in contrast to the decrease of the share of labor income from 71.0 percent to 68.5 percent.

With the contraction of the economy, rising unemployment and falling income, household expenditure also dropped by 20.9 percent in the same period. The largest

[1] The data structure follows the Panel Survey of Income Dynamics (PSID) data of US.

drop of 64.1 percent was in the consumption on luxurious items (durables and dining out), 16.7 percent in food consumption, and 23.7 percent in consumption on education (which includes expenses for extracurricular activities and additional after-school classes). Although the consumptions on food and education fell in absolute terms during the crisis, they constituted a higher proportion of household budgets—30.5 percent of total expenditure. The share of expenditure on nondurables remained almost the same as 26.1 and 25.3 percent, respectively, while that of luxury expenditure fell from 9.7 percent to 4.4 percent. This suggests that average households were cutting back consumption on non-essential items to weather the crisis and protect consumptions on food and education.

Table 2 shows that the percentage of households that received private and public transfers had increased since 1995. Throughout the period, there was an increasing trend in the number of households receiving private and public transfers. The percentage of households that received private and public transfers rose from 18.3 and 9.3 percent in 1997 to 21.7 and 16.3 percent in 1998, respectively. This evidence suggests that private and public transfers served as important risk-coping devices during the financial crisis.

Furthermore, Table 3 reports the percentage of recipients of private and public transfers by characteristic of household head. By gender, there was no remarkable change over time. Throughout the period, the percentage of male-headed households is higher than that of female-headed households. However, considering that the percentage of female-headed households is just about 10 percent of total sample, it can be said that female-headed households received more private and public transfers than male-headed households. By area, the percentage of rural households is higher than that of urban households and there was no significant change in the distribution of private transfers among these households. With respect to public transfers, while the percentage of urban households dropped by 6.0 percent, the percentage of rural households increased by 3.0 percent.

By occupation, households with unemployed or non-paid heads occupied, not surprisingly, the highest share. In addition, it seems that they were provided more by

private transfers than public transfers during the crisis since their percentage of received private transfers increased by 3.2 percent, contrasts to the 5.5 percent fall in their percentage of received public transfers. By educational level, household heads with primary or less education covered the largest share. Overall, there was almost no change observed by educational level even during the crisis.

One of the key premises for private transfer is that it responds to capital market imperfection. If this is true, transfer receipts should be more frequent in phase of the life-cycle when desired consumption exceeds current earnings. If households prefer to smooth consumption over the life-cycle and transfers help to do that, then the young and the old receive more transfers than the middle-aged. Thus the timing of transfers is very important.

Table 4 reports the pattern of private and public transfers by age of household head. Households with heads above 60 years old and below 36 years old tended to receive more private and public transfers. In 1998, for instance, households with heads above 60 years old received about 480 thousand won per capita of private transfers and those with heads below 35 years old received 230 thousand won. On the other hand, households with heads of 36-60 years old received only 70 thousand won as private transfers. Moreover, households with heads above 60 years old tended to receive more public transfers than other households. This is not surprising since public transfers consist mainly of pensions.

3.3 Private and public transfers as social safety nets

One of the main concerns of this paper is to assess the role of private and public transfers as social safety net during the crisis. Table 5 shows the trend of private and public transfers by per capita pre-transfer income decile.

In terms of per capita pre-transfer income decile, the poorest 10 percent group received the largest amount of private transfers, e.g., 1016 thousand won in 1998. Interestingly, during the crisis, the private transfer network was expanded to the next lowest three deciles—transfers increased by 98% in 1998 for households in the lowest

30% decile.

The poorest 10 percent group also received the largest amount of public transfers, which is composed mainly of financial supports received by the poor from government or social organization rather than pensions. Moreover, during the crisis, middle-percentile groups tended to receive more public transfers. The amount of public transfer to the richest 10 percent and 20 percent also dropped by 25 percent and 15 percent, respectively.

Table 6 summarizes the ingredients of public transfers in 1998. The average amount of per capita public transfers includes national pensions, financial supports from the government or social organizations, and unemployment insurance. Table 6 shows that the poorest half of total households received more than the average amount of total public transfers (85.8 thousands won). Financial supports from the government or social organizations, as expected, played a major role in helping the poor. However, the larger average amount of pension relative to that of supports from the government and social organization suggests that most of public transfers may have served more as permanent sources of extra income rather than as temporal safety net devices. The role of unemployment insurance was negligible since the coverage of an official unemployment insurance program was expanded substantially only after October 1998.[2]

4. Estimation

4.1 Empirical Model Specification

Under the altruistic motive, the variable determining whether a transfer occurs depends on the difference between the donor's marginal utility of consumption and the recipient's marginal utility of consumption (Cox 1987). A rise in the recipient's pre-transfer income reduces transfers because it lowers the donor's marginal utility from transferring income to her/him. So the richer the recipient is, the less likely for him to

[2] The new formal unemployment insurance scheme expanded its coverage from firms with more

receive a transfer.

On the other hand, the exchange motive predicts that the latent variable determining the transfer decision is inversely related to pre-transfer income of recipient because increases of pre-transfer income reduces the chances that transfers are mutually beneficial.

In order to identify the motives of private transfers quantitatively, we employ the empirical model of Cox (1987) and Cox, Eser, and Jimenez' (1998). For the decision whether a transfer occurs, the following stochastic model of the latent variable that determines private transfer receipts of household *i* at time *t*:

$$PRT_{it} = \alpha_1 y_{it} + \alpha_2 PUT_{it} + X_{it}\beta + u_i + u_t + \varepsilon_{it}, \tag{1}$$

where *PRT* is a latent variable of private transfers which is observed only when positive. Per capita pre-transfer income and public transfers are represented by y and PUT_{it}, respectively. The matrix, X, includes various household characteristics. The last term, ε, represents the well-behaved stochastic error term. In order to control for unobserved heterogeneity, we also include time- and household-fixed effect, u_i and u_t, respectively, where the latter is expected to capture the aggregate effects of the financial crisis.

Dependent variable of Equation (1) is a latent variable which can be observed only when positive. Therefore, we estimate the binary transfer functions by defining the following binary variables:

$$\begin{aligned} \delta^{PRT}_{it} &= 1 \quad if \quad PRT_{it} > 0, \\ &= 0 \quad otherwise \end{aligned} \tag{2}$$

Since Equation (1) includes household fixed effects, we employ Chamberlain's (1981) conditional likelihood function and estimate the logit model with fixed effects. We estimate private and public transfers separately by assuming that the error term, ε, in

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than 30 employees to all firms as well as to temporary and daily workers.

Equation (1) is independent and uncorrelated with *PUT* and *X*. This assumption may be plausible since most of unobserved factors that affect private and public transfers will be captured by household and time fixed effects.

Note that, per capita pre-transfer income is included as an independent variable. The key to identify transfer motives is the sign for the pre-transfer income coefficient in the decision versus the amount equation. Cox (1987) find that the comparative statistics results for the transfer decision are the same for both transfers motivated by altruism and exchange. This finding implies that information on transfer decisions alone is insufficient for making inferences about transfer motives. Thus the estimated coefficient for pre-transfer income in equation (1) is not enough to identify transfer motives.

Yet, through estimation of the transfer amount equation, we can identify the transfer motives since the exchange motive predicts a negative coefficient for recipient pre-transfer income, while the altruistic motive predicts a negative sign for pre-transfer income equation (Cox 1987; Cox and Rank 1992). Hence, we also estimate the transfer amount equation as follows

$$PRT_{it} = \beta_1 y_{it} + \beta_2 PUT_{it} + X_{it}\gamma + u_t + u_i + \varepsilon_{it} \quad if \quad PRT_{it} > 0 . \tag{3}$$

For estimation, instead of using a household fixed effect Tobit model which uses the trimmed least absolute deviation estimator developed by Honoré (1992), we use a random effect Tobit model since the estimation method for fixed effect Tobit model is still under the active front-line research and there is no practically reliable computation methodology which is appropriate for our data (Lee 2002). In the random effect Tobit model, the household specific term, u_i, is a stochastic variable. The likelihood function to estimate random effect Tobit model involves integration over the household random effects, u_i. We utilized an approximation of the likelihood with Gauss-Hermite quadrature. Following Cox (1987), the sign hypothesis for β_1 is positive under exchange and negative under altruism. If the estimated coefficient on

public transfers, β_2, is negative, it indicates the magnitude of the crowding-out effect of public transfers

In Equations (1) and (3), the matrix of other control variables, *X*, includes the household head's characteristics such as age, education level and occupation and the household's demographic characteristics. We have two specific comments on the selection of independent variables.

First, we include age variables of household head because, as Cox (1990) emphasized, the timing of transfers over the life cycle is important especially for households facing liquidity constraints. If households are subject to binding borrowing constraints the transfer receipts will be concentrated at early age when current resources are low. Although even developing countries have public pensions, most of these apply only to urban workers in the formal sector (World Bank, 1989), Thus, old family members are likely to be dependent on informal supports from young family members.

Second, in order to capture the effect of transfer network of an extended family, we enter variables representing residential area, gender of household head, family size, and the number of children and elderly as a household's characteristics. Particularly, the number of children will be an important determinant of public transfers in light of the old-age insurance motives of having many children. In addition, larger households are likely to obtain a large amount of public transfers since they have more members to support.

4.2 Estimation results

Table 7 reports the logit and Tobit estimation results. In order to examine the impact of the crisis on private transfers, we conducted separate estimations for the entire period, i.e., 1995-1998, before the crisis period, i.e., 1995-97 and during the crisis period, i.e., 1998. In the first two columns with the entire sample, year dummies are significantly positive and increasing over time, indicating that overall private transfers

have increased.

Before the crisis, the coefficient of per capita pre-transfer income is statistically insignificant which leads to difficulty in identifying the motives of private transfers in terms of decision while its coefficient on amount is shown negative and significant. These results together suggest that the altruistic motive of private transfers existed before the crisis. In addition, a significant crowding-out effect between private and public transfers is observed, since the coefficient of public transfers is strongly negative and significant, a finding which is consistent with previous findings for other countries (e.g., Cox and Jimenez 1990, 1995; Cox, Eser and Jimenez 1998; Jensen 2002). As for the effects of occupational characteristics, households whose heads are unemployed or non-paid workers and engaged in agriculture and fisheries were clearly targeted by private transfers. On the other hand, households with self-employed heads appear to receive significantly less private transfers. With respect to the age variables, the coefficient of age of the household head is significantly negative whereas that of age squared is significantly positive. These results suggest that the amount of private transfers tend to decrease initially as the household head gets older and then begin to increase again at a certain age level, possibly reflecting the liquidity constraints of old age group (Cox 1990).

On the other hand, during the financial crisis, pre-transfer income has negative and significant coefficient in both the decision and amount equations, indicating clearly that private transfers were altruistically motivated. This result suggests that the altruistic motive of households was reinforced during the crisis, that consequently allowed poor Korean households to depend on informal transfers. However, we should note that there is still a strong crowding-out effect between private and public transfers, implying that the effectiveness and efficiency of the government's interventions was diluted significantly.

Through comparisons of results before and after the financial crisis, we can infer that urban households suffered from the lack of private transfer since the coefficient of urban residence dummy became significantly negative during the crisis. These results suggest that although the financial crisis activated altruistically motivated

private transfer networks, urban households were still in need of informal financial supports.

Other findings during the crisis are similar to those before the crisis, which can be summarized as follows. First, households whose heads are unemployed or non-paid workers and those engaged in agriculture, fisheries and part-time jobs were targeted by private transfers. Second, larger households tended to receive less private transfers. On the other hand, households with more elderly were well targeted by private transfers. Third, the significant positive coefficients for female-headed household indicate that female-headed households are more likely to receive transfers, and in larger amounts than male-headed households—a consistent pattern across countries (Lucas and Stark 1985; Kaufman and Lindauer 1986; Cox 1987; Cox and Jimenez 1989). We should note that this result is not due to the poverty of female-headed households, since even after holding current income constant—comparing transfer amounts across households with similar income levels—the same pattern persists. One possible reason for this finding is simply that females tend to live longer than males and may get more of old-age transfers through an altruistically-linked informal network and formal channel. Another reason may be that private transfers compensate females for wage discrimination in the formal labor market.

5. Conclusion

Through estimation of econometric model with household-level panel data both before and during the crisis in Korea, this paper investigated motives and crowding-out effects of private transfers. The estimation results show that the transfer behavior of Korean households is altruistically motivated especially during the crisis. Yet, the amount of altruistically-motivated private transfers was not sufficient for households living in urban areas. Also, there had been a strong crowding-out effect of public transfers on private transfers.

In general, we may conclude that Korean households were well protected by inter- and/or intra-household transfers and public transfers during the crisis. However,

the evidence of a strong crowding-out effect between private and public transfers suggests that the government should have designed its targeting schemes carefully in order to improve effectiveness and efficiency of its social safety net programs.

Table 1

Descriptive Statistics for the Entire Sample

	1995	1996	1997	1998
Age of head	47.1	48.0	48.8	50.2
Household size	3.8	3.8	3.7	3.7
Total income	708.5	784.3	779.5	592.0
Pre-transfer income	688.5	757.9	749.4	561.0
Labor income	518.4	553.1	553.5	405.6
Asset income	122.0	152.3	144.3	85.4
Transfer income	19.6	26.2	29.0	31.4
Private transfers	13.3	20.5	22.8	22.8
Public transfers	6.3	5.7	6.2	8.6
Other income	51.6	58.5	55.5	73.7
Outstanding debt (formal bank loans, informal and personal loans)	203.8	238.5	217.1	300.6
Financial assets (saving accounts, shares, bonds, insurances, and loans)	236.8	278.8	274.0	285.7
Total Expenditure	628.4	539.7	543.7	430.0
Non-durable	145.0	137.6	142.0	108.7
Food	97.9	99.1	101.1	84.2
Housing	0.3	0.3	0.3	0.3
Clothing	26.3	23.6	23.2	14.8
Education	54.0	56.9	61.5	46.9
Medical and child care	32.2	17.2	18.0	17.2
Luxury (durables and dining out)	67.3	59.0	52.6	18.9
Car	128.0	68.1	61.7	36.7
Public utilities	186.3	183.1	189.2	182.0
Others	14.9	16.4	17.5	19.7
Number of households	2985	2676	2536	2215

Note: Income and expenditure values are in 10,000 Korean won per capita household at constant 1995 prices.

Table 2

Percentage of Transfer Recipients by Year (%)

	Private	Public	Total	Households
1995	13.1	6.2	17.9	2985
1996	16.7	6.5	20.9	2676
1997	18.3	9.3	22.8	2536
1998	21.7	16.3	30.6	2215
Total	15.3	7.8	20.1	13977

Table 3
Percentage of Transfer Recipients
by Characteristic of Household Head

		1995	1996	1997	1998
Private Transfers					
Gender	Female	24.9	27.3	26.3	26.3
	Male	75.1	72.7	73.7	73.7
Region	Urban	40.8	37.7	34.8	34.6
	Rural	59.2	62.3	65.2	65.4
Occupation	Salaried	19.7	13.5	13.6	12.3
	Self-employed	11.8	11.0	9.7	9.2
	Farmers and Fishers	27.4	31.6	33.9	32.6
	Unemployed and non-paid	41.2	44.0	42.8	46.0
Education	Primary or less	46.7	53.8	51.0	49.2
	Secondary	37.5	31.6	37.2	36.0
	Tertiary	15.8	14.6	11.9	14.8
Public Transfers					
Gender	Female	22.1	21.8	23.2	22.9
	Male	77.9	78.2	76.8	77.1
Region	Urban	39.3	31.6	30.9	24.9
	Rural	60.8	68.4	69.1	72.1
Occupation	Salaried	18.9	13.8	14.0	10.0
	Self-employed	8.7	9.8	5.5	11.9
	Farmers and Fishers	26.5	29.9	30.1	33.2
	Unemployed and Non-paid	46.0	46.6	50.4	44.9
Education	Primary or less	44.6	44.8	53.0	48.9
	Secondary	40.3	43.1	37.3	40.3
	Tertiary	15.1	12.1	9.8	10.8

Table 4
Average Per capita Private and Public Transfers
by Age of Household Head

	1995	1996	1997	1998	Total
Private Transfers					
(Age)					
20-25	7.1	0	0	14.7	4.3
26-30	23.5	27.2	48.9	24.3	19.2
31-35	6.7	6.3	18.2	30.2	9.3
36-40	4.6	5.8	3.4	7.7	4.3
41-45	3.0	3.4	9.8	7.7	4.8
46-50	4.2	1.4	1.9	1.9	2.1
51-55	4.9	5.4	7.7	7.3	5.2
56-60	8.4	17.0	24.1	10.5	13.5
61-65	17.9	32.6	36.6	38.6	28.5
66-70	51.4	81.6	49.1	57.4	58.4
Above 70	59.0	90.0	89.6	78.9	75.5
Public Transfers					
(Age)					
20-25	0	19.0	0	2.0	4.0
26-30	0	4.6	11.7	20.8	3.9
31-35	2.4	1.8	3.3	6.7	2.1
36-40	3.6	2.0	3.1	1.0	2.1
41-45	1.3	1.0	0.6	2.1	1.0
46-50	2.5	0.4	0.7	1.9	1.4
51-55	3.7	5.9	4.9	5.3	4.2
56-60	5.9	5.1	4.6	7.9	5.0
61-65	23.1	17.4	13.6	5.4	14.0
66-70	18.6	19.7	22.4	26.3	18.9
Above 70	12.9	13.3	14.6	29.6	15.7

Note: Values are in 10,000 Korean won at constant 1995 prices.

Table 5

Average Per capita Private Transfers by Decile

Percentile	1995	1996	1997	1998	Change 96-97(%)	Change 97-98(%)
Private transfers						
10	66.5	118.7	112.1	101.6	-5.6	-9.4
20	8.6	21.0	24.4	32.1	16.2	31.6
30	8.8	8.9	12.2	22.9	37.1	97.7
40	4.3	8.4	7.2	12.8	-14.3	77.8
50	2.4	8.7	9.0	7.2	3.5	-20.0
60	2.6	3.6	7.1	4.7	97.2	-33.8
70	8.6	8.0	8.0	4.3	0.0	-46.3
80	6.9	4.7	20.9	13.3	344.7	-36.4
90	8.5	12.3	9.8	7.0	-20.3	-28.6
100	12.0	12.8	22.7	11.6	77.3	-48.9
Public transfers						
10	24.2	28.6	27.6	30.0	-3.5	8.7
20	7.7	1.0	7.7	6.8	670.0	-11.7
30	4.1	3.9	5.7	13.2	46.2	131.6
40	2.2	2.5	2.3	8.2	-8.0	256.5
50	2.9	1.3	1.5	8.8	15.4	486.7
60	4.3	2.3	1.8	2.9	-21.7	61.1
70	3.7	3.4	3.4	5.4	0.0	58.8
80	1.4	3.6	2.0	3.3	-44.4	65.0
90	4.7	2.7	4.0	3.4	48.2	-15.0
100	7.5	6.5	6.0	4.5	-7.7	-25.0

Note: Values are in 10,000 Korean won at constant 1995 prices.

Table 6

Average Per capita Public Transfers in 1998 by Category and Decile

Percentile	Pension	Financial supports from the government and social organizations	Unemployment Insurance	Total
10	17.7	12.13	0.14	29.97
20	1.66	5.10	0.00	6.77
30	12.00	1.00	0.23	13.23
40	7.40	0.33	0.52	8.25
50	8.25	0.57	0.00	8.83
60	2.72	0.13	0.09	2.94
70	4.94	0.43	0.00	5.37
80	2.93	0.11	0.23	3.28
90	2.56	0.84	0.00	3.40
100	4.40	0.09	0.00	4.48
Mean	6.41	2.06	0.12	8.58

Note: Values are in 10,000 Korean won at constant 1995 prices.

Table 7

Panel Estimation Results

	Entire Period		Before the Crisis		During the Crisis	
	Logit	Tobit	Logit	Tobit	Logit	Tobit
Pre transfer income/10^3	-0.058	-22.159	-0.07	-21.729	-0.822	-55.476
	(0.79)	(3.99)**	(0.78)	(3.49)**	(4.37)**	(3.99)**
Public transfers	-0.009	-0.481	-0.008	-0.781	-0.003	-0.316
	(3.52)**	(6.50)**	(2.94)**	(5.99)**	(2.88)**	(3.99)**
=1 if the head is self-employed	0.246	4.387	0.414	9.292	-0.168	-17.994
	(0.91)	(0.39	(1.24)	(0.71)	(0.77)	(0.94)
=1 if the head is in agriculture/	0.746	88.839	0.673	93.469	0.861	70.953
fisheries/Part-time	(2.91)**	(7.60)**	(2.01)*	(6.80)**	(4.21)**	(3.67)**
=1 if the head is unemployed/	1.317	167.428	1.363	180.664	1.271	140.177
non-paid	(5.04)**	(13.49)**	(3.93)**	(12.00)**	(6.09)**	(7.13)**
Household size	-0.203	-20.082	-0.261	-18.545	-0.22	-27.485
	(2.28)*	(5.30)**	(2.12)*	(4.16)**	(3.38)**	(4.50)**
Number of children below 15	0.169	-5.95	0.42	-11.003	0.08	8.752
	(1.07)	(1.09)	(1.97)*	(1.71)	(0.89)	(1.01)
Number of elderly above 60	0.226	37.715	0.242	37.153	0.366	37.708
	(2.54)*	(8.00)**	(2.03)*	(6.56)**	(4.77)**	(5.21)**
Age of the head	-0.145	-9.085	-0.183	-10.309	-0.054	-2.026
	(2.55)*	(4.30)**	(2.41)*	(4.13)**	(3.84)**	(0.62)
Age squared/10^3	1.109	93.958	1.406	106.864	0.634	27.282
	(2.02)*	(4.74)**	(1.98)*	(4.55)**	(3.82)**	(0.92)
=1 if the head is a junior	0.307	8.365	-0.334	0.939	0.129	28.222
high school graduate	(0.58)	(0.66)	(0.44)	(0.06)	(0.66)	(1.54)
=1 if the head is a senior	-1.049	-8.703	-1.936	-11.05	-0.082	10.06
high school graduate	(1.88)	(0.67	(2.50)*	(0.72)	(0.41)	(0.52)
=1 if the head is a college	-0.613	52.581	-2.258	45.612	0.696	89.907
graduate or above	(0.82)	(3.52)**	(2.16)*	(2.62)**	(2.96)**	(3.94)**
=1 if the head is female	-0.143	81.925	-0.86	83.523	0.531	64.768
	(0.39)	(6.82)**	(1.59)	(5.90)**	(2.75)**	(3.63)**
=1 if the head resides in urban	2.191	-15.695	35.782	-9.745	-0.371	-27.128
	(1.81)	(1.93)	(0.00)	(1.03)	(2.81)**	(2.24)*
=1 for 1996	0.435	33.262	0.464	35.017		
	(4.08)**	(4.00)**	(4.25)**	(4.07)**		
=1 for 1997	0.627	39.121	0.665	40.458		
	(5.65)**	(4.67)**	(5.69)**	(4.66)**		
=1 for 1998	0.791	36.533				
	(6.81)**	(4.27)**				
Constant		-33.079		-22.709		-100.1
		-0.59		-0.34		-1.08
Observations	2867	9915	1755	7798	2117	2117
Number of Households		3076		2979		

Notes: 1) Absolute value of z-statistics in parentheses. 2) * significant at 5%; ** significant at 1%.

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